

under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 19-0036.

***Amendments***

***In the Claims:***

Please add the following new claims.

D 1

91. (New) An apparatus for conducting a microfluidic process, said

apparatus comprising:

a substrate comprising an array of sample access ports adapted for receiving a plurality of samples from an array of sample containers and a planar array of microfluidic networks of cavity structures and channels.

92. (New) An apparatus for conducting a microfluidic process, said apparatus comprising:

a substrate comprising an array of sample access ports adapted for receiving a plurality of samples from an array of sample wells and a planar array of microfluidic networks of cavity structures and channels, wherein each of said microfluidic networks is adapted for fluid communication with a corresponding sample access port.

93. (New) The apparatus of claim 92, wherein each of said sample access ports comprises a reservoir or channel that is in fluid communication with

a corresponding capillary adapted to receive samples from one of said sample wells.

*cont*

*D1*

94. (New) The apparatus of claim 92, wherein said array of sample wells conforms to the format of a 96, 192, 384, or 1536 well plate.

95. (New) The apparatus of claim 92, wherein each of said microfluidic networks comprises:

- (a) a sample receiving cavity structure adapted for receiving sample from said corresponding sample access port; and,
- (b) one or more additional cavity structures in fluid communication with said sample receiving cavity structure.

96. (New) The apparatus of claim 92, wherein each of said microfluidic networks comprises:

- (a) a sample receiving cavity structure adapted for receiving sample from said corresponding sample access port;
- (b) one or more waste cavity structures in fluid communication with said sample receiving cavity structure; and,

*Cont*

(1) 1

- (c) one or more buffer containing structures in fluid communication with said sample receiving cavity structure.

97. (New) The apparatus of claim 94, wherein each of said microfluidic networks of cavity structures and channels comprises a tortuous path.

98. (New) A kit comprising in packaged combination:

- (a) the apparatus of claim 91; and,  
(b) reagents, other than reagents within said apparatus, for processing a sample.

99. (New) A method for processing an array of samples, said method comprising:

- (a) simultaneously transferring at least a portion of each sample in an array of sample wells to a corresponding array of sample access ports that are formed in a substrate and are adapted for receiving the samples from the array of sample wells,
- (b) simultaneously transferring at least a portion of each sample from said sample access ports to a corresponding array of microfluidic networks comprising a planar array of cavity structures and channels, wherein each of said microfluidic networks is adapted for fluid communication with a corresponding sample access port, and
- (c) processing said array of samples.

*cont*

100. (New) The method of claim 99, wherein said processing comprises conducting an analysis of said samples.

*D L*

101. (New) The method of claim 99, wherein said processing comprises conducting a chemical synthesis.

102. (New) The method of claim 99, wherein each of said sample access ports comprises a reservoir or channel that is in fluid communication with a corresponding capillary adapted to receive samples from one of said sample wells.

103. (New) The method of claim 99, wherein said array of sample wells conforms to the format of a 96, 192, 384, or 1536 well plate.

104. (New) The method of claim 99, wherein each of said microfluidic networks comprises: (a) a sample receiving cavity structure adapted for receiving sample from said corresponding sample access port; and, (b) one or more additional cavity structure in fluid communication with said sample receiving cavity structure.

105. (New) The method of claim 99, wherein each of said microfluidic networks comprises: (a) a sample receiving cavity structure adapted for receiving sample from said corresponding sample access port; (b) one or more waste cavity structures in fluid communication with said sample receiving cavity structure; and, (c) one or more buffer containing structures in fluid communication with said sample receiving cavity structure.

106. (New) The method of claim 99, wherein each of said microfluidic networks comprises a plurality of interconnected cavity structures and channels of microscale dimension.

*C. Parce*  
*D. J. Parce*

107. (New) A kit comprising in packaged combination:

- (a) the apparatus of claim 92; and,
- (b) reagents, other than reagents within said apparatus, for processing a sample.